IN THE CLAIMS

What is claimed is:

1. A method for reducing profile distortion in semiconductor fabrication, comprising:

providing a semiconductor substrate comprising a film comprising silicon-nitride;

treating the film in a vacuum of about 3.0-6.5 Torr and in an atmosphere comprising oxygen plasma wherein the oxygen plasma flow rate is at least about 300 sccm oxygen thereby rendering the substrate resistant to profile distortion;

applying a resist to the treated substrate; and

patterning the resist.

2. The method of claim 1 and further including exposing oxygen gas to an energy source generating about 150-900 watts in order to make the oxygen plasma.

3. The method of claim 2 wherein the oxygen plasma is made by electromagnetic excitation of oxygen gas by electrodes that are about 400 to 600 mils apart.

4. The method of claim 1 wherein the silicon nitride film is exposed to the oxygen plasma for a time of about 10 seconds to about 5 minutes.

5. The method of claim 2 wherein the oxygen plasma is made by an exposure of oxygen gas to an energy source that is RF energy.

6. The method of claim 2 wherein the oxygen plasma is made by an exposure of oxygen gas to an energy source that is microwave energy.

7. The method of claim 1 wherein the reduced profile distortion is footing.

8. The method of claim 1 wherein the reduced profile distortion is undercutting.

9. The method of claim 1 and further including removing the resist from the silicon nitride film with reduced profile distortion.

10. The method of claim 1 wherein the oxygen flow rate is not greater than about 2000 sccm.

11. The method of claim 1 and further comprising adding an inert gas to the oxygen gas.

12. A semiconductor, comprising:

a substrate;

a silicon nitride film that overlays the substrate; and

a microcircuit positioned within and on the silicon nitride film wherein the microcircuit is substantially free from profile distortion.

13. The semiconductor of claim 12 wherein the silicon nitride film is substantially free from surface viscosity discontinuities.

14. The semiconductor of claim 12 and further including a resist patterned to form a portion of the microcircuit, positioned over the silicon nitride film.

15. The semiconductor of claim 14 wherein the resist is an acid-catalyzed photoresist.

16. A semiconductor fabrication construction, comprising:
a semiconductor substrate;
a silicon nitride film that overlays the substrate wherein the film is substantially free of tackiness; and
a photoresist that overlays the silicon nitride film.

17. The semiconductor fabrication of claim 16 wherein the photoresist is an acid catalyzed photoresist.

18. The semiconductor fabrication of claim 16 wherein the photoresist is patterned.

19. The semiconductor fabrication of claim 18 wherein the photoresist is substantially free of profile deformation.

20. The semiconductor fabrication of claim 16 wherein the silicon nitride comprises a surface that is substantially free of surface viscosities discontinuities.

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